REMARKS

Applicant appreciates the continued thorough examination of the present application, as evidenced by the Office Action of February 19, 2008.

Claims 46-51, 53 and 76-77 are pending. The Office Action contains a discussion of Claims 1, 4-6, 12, 13, 21, 23, and 25-27. See Office Action at 3-6. As these claims are no longer pending, Applicant has not addressed the comments in the Office Action regarding these claims.

Applicant submits that the pending claims are patentable over the cited references for at least the reasons discussed below, and, accordingly, requests allowance of the presnet application.

1. Status of the Claims

Claims 46, 48-51 and 53 stand rejected under 35 USC § 103(a) as unpatentable over Krames et al. (US 5,779,924) in view of Suehiro et al. (EP 1263058). Office Action at 6. Claim 47 stands rejected under 35 USC § 103(a) as unpatentable over Krames et al. in view of Suehiro et al. and further in view of the Boehlen et al. article. Claims 76 and 77 stand rejected under 35 USC § 103(a) as unpatentable over Krames et al. in view of Hirokane et al. (US 5,087,535).

2. Claims 46, 48-51, 53 and 76 Are Patentable

Claim 46 recites "patterning a mask layer on the silicon carbide substrate using a laser to remove material from the mask layer, wherein patterning the mask layer comprises applying laser light to the mask layer at an energy sufficient to remove material from the mask layer while scanning a pattern into the mask layer to form three dimensional geometric patterns in the mask layer." In rejecting Claim 46, the Office Action states that Krames et al. "discloses patterning a mask layer on a substrate 3 using a laser to remove material from the mask layer 5." Applicant respectfully notes that the Office Action has summarily ignored the recitation of Claim 46 that "patterning the mask layer comprises applying laser light to the mask layer at an energy sufficient to remove material from the mask layer," and that Krames et al. fails to teach or suggest such a recitation.

Rather, Krames describes forming a mask and exposing the mask using laser beam interference. Krames, col. 7, lines 11-16. The exposed mask is then developed. Thus, Krames does not teach applying laser light to the mask layer at an energy sufficient to remove material from the mask, as recited in Claim 46. Furthermore, the techniques of Krames cannot be used to create different three-dimensional geometric patterns in a substrate using a single mask.

The Office Action states that changing the shape of the structure is an obvious matter of design choice, and that "the difference in shape of the structure does not make the device operating (sic) differently." Office Action at 7. This statement is simply incorrect. As explained in the specification, extraction of light from a light emitting diode can be enhanced by texturing a substrate of the light emitting diode. See generally, Specification, pages 2-4. The shape of the texturing can have a significant impact on light extraction. See, e.g., Specification, page 3, lines 3-11, discussing random texturing of LED surfaces. In contrast, Krames et al. discloses periodic patterning of LED surfaces for light extraction. See Specification, page 3, lines 12-15. However, as previously discussed, the methods disclosed in Krames et al. are incapable of producing different three-dimensional geometric patterns in a substrate using a single mask.

In contrast, the methods of Claim 46 can produce different three-dimensional geometric patterns on a substrate, and therefore provide the ability to produce structures that have more varied light extraction characteristics than Krames et al., while still being able to be engineered for particular applications, unlike purely random texturing.

Suehiro et al. is cited as teaching a silicon carbide substrate, and is not relied on as teaching "patterning a mask layer ... using a laser to remove material from the mask layer, wherein patterning the mask layer comprises applying laser light to the mask layer at an energy sufficient to remove material from the mask layer while scanning a pattern into the mask layer to form three dimensional geometric patterns in the mask layer." Claim 46 is therefore patentable over Krames et al. in view of Suehiro et al.

3. Claim 77 Is Patentable

Claim 77 recites as follows:

77. A method of shaping a surface of a silicon carbide substrate, comprising:

forming a mask layer on the surface of the silicon carbide substrate;

patterning the mask layer using a laser to remove material from the mask layer, wherein patterning the mask layer comprises scanning laser light onto the mask layer at an energy sufficient to remove material from the mask layer to form three-dimensional geometric features in the mask layer having sidewalls that are angled relative to the surface of the substrate; and

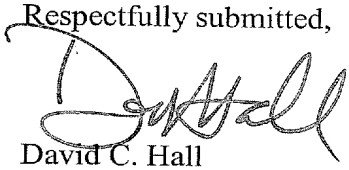
anisotropically etching the silicon carbide substrate using the patterned mask layer to define the three dimensional geometric patterns having sidewalls that are angled relative to the surface of the substrate.

Claim 77 is patentable for at least similar reasons as Claim 46, in that Krames et al. do not disclose or suggest at least "patterning the mask layer using a laser to remove material from the mask layer, wherein patterning the mask layer comprises scanning laser light onto the mask layer at an energy sufficient to remove material from the mask layer." Furthermore, while aniostropic etching is a well-known semiconductor processing technique, Applicant respectfully submits that the use of anisotropic etching as recited in Claim 77 to define the three dimensional geometric patterns having sidewalls that are angled relative to the surface of the substrate is not disclosed or suggested by the cited references. Claim 77 is therefore patentable over the cited references.

CONCLUSION

In light of the above remarks, Applicant respectfully submits that the above-entitled application is now in condition for allowance. Favorable reconsideration of this application, as amended, is respectfully requested. If, in the opinion of the Examiner, a telephonic conference would expedite the examination of this matter, the Examiner is invited to call the undersigned attorney at (919) 854-1400.

Respectfully submitted,



David C. Hall
Registration No. 38,904

Customer Number 65106
Myers Bigel Sibley & Sajovec, P.A.
P.O. Box 37428
Raleigh, NC 27627
919-854-1400
919-854-1401 (Fax)